

Claims

1. Use of at least one type of xanthophylls for the production of a medicament for suppression of excessive Th1 cell mediated immune responses and stimulation of Th2 cell mediated immune responses in a patient during ongoing infection and/or inflammation in said patient.
2. Use according to claim 1, wherein the excessive Th1 cell mediated immune responses are caused by at least one disease from the group of autoimmune diseases and chronic viral and intracellular bacterial infections.
3. Use according to claim 2, wherein the disease is Psoriasis vulgaris, Multiple sclerosis (MS), Rheumatoid arthritis, Crohn's disease, Insulin-dependant diabetes mellitus, Tuberculosis (TB), Acute graft-versus-host disease (transplant rejection), or HIV virus infection.
4. Use according to any one of claims 1 -3, wherein the type of xanthophyll is astaxanthin.
5. Use according to claim 4, wherein the astaxanthin is in a form esterified with fatty acids.
6. Use according to claim 4 or 5, wherein the astaxanthin is derived from a natural source.
7. Use according to claim 6, wherein the natural source is a culture of the algae *Haematococcus sp.*
8. Use according to any one of the claims 1 - 7, wherein the medicament is an oral preparation.
9. A method of suppressing excessive Th1 cell mediated immune responses and stimulating Th2 cell mediated immune responses in a patient during ongoing infection and/or inflammation in said patient comprising administration of an Th1 cell response suppressing and Th2 cell response stimulating amount of at least one type of xanthophylls to said patient.
10. The method according to claim 9, wherein the excessive Th1 cell mediated immune responses are caused by at least one disease from the group of autoimmune diseases and chronic viral and intracellular bacterial infections.
11. The method according to claim 10, wherein the disease is Psoriasis vulgaris, Multiple sclerosis (MS), Rheumatoid arthritis, Crohn's disease, Insulin-dependant diabetes mellitus, Tuberculosis (TB), Acute graft-versus-host disease (transplant rejection), or HIV virus infection.

12. The method according to claim 9, wherein the type of xanthophyll is astaxanthin.

13. The method according to claim 12, wherein the astaxanthin is in a form esterified with fatty acids.

14. The method according to claim 12 or 13, wherein the astaxanthin is derived from a natural source.

15. The method according to claim 14, wherein the natural source is a culture of the algae *Haematococcus* sp.

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